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Deployment Stressors and Posttraumatic Stress Symptomatology: Comparing Active Duty and National Guard/Reserve Personnel from Gulf War I

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The increased use of National Guard and Reserve (NG/R) military personnel in current conflicts raises the question of whether deployment experiences and their associations with posttraumatic stress symptomatology differ for active duty and NG/R military personnel. To date, very few studies are available on this topic. Moreover, it is unclear whether the impact of military status differs for women and men. We addressed these research issues in a sample of 311 female and male Gulf War I veterans. Several differences were observed in deployment stressor exposures and results based on differential associations generally suggested more negative impacts of deployment experiences for active duty women and NG/R men. The potential role of unit cohesion in explaining these findings is discussed.

With the current conflict in Iraq, interest in the impact of war-zone exposure on the health of returning veterans has grown. Much of this attention has centered on the increasing use of National Guard and Reserve (NG/R) units in these conflicts. Given differences in background characteristics, family responsibilities, and military training, one might anticipate that active duty and NG/R personnel would experience distinct deployment stressors and these stressors would have a differential impact on their health. Yet, surprisingly little research is available on this topic. In the current study, we examined a wide range of deployment stressors that were content-valid for both active duty and NG/R military personnel deployed to the 1990–1991 Gulf War conflict (Gulf War I). Our goal was to elucidate differences in exposure to deployment stressors based on military status (i.e., deployed from the regular active duty forces or activated from NG/R units) and to identify differential associations between deployment stressors and posttraumatic stress symptomatology (PTSS) for these groups. We were also interested in whether these associations might differ for women and men, given evidence for gender differences in both exposure to stressful and traumatic events and postexposure sequelae (e.g., Tolin & Foa, 2006).

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Deployment of NG/R personnel has increased substantially over the last several decades. Gulf War I made extensive use of NG/R units, with approximately 18% of all soldiers deployed from NG/R units (Lakhani & Fugita, 1993). In today's conflict, that number has climbed to over 40%, and over the past 3 years more NG/R soldiers have been mobilized for the wars in Iraq and Afghanistan than for the Vietnam War, Cuban Refugee Crisis, Haiti, Bosnia, Kosovo, and Gulf War I combined (Iraq and Afghanistan Veterans of America, n.d., ¶6). NG/R personnel differ from active duty personnel in a number of ways. With respect to background characteristics, NG/R personnel tend to be older, on average, compared with active duty personnel (Seal, Bertenthal, Miner, Sen, & Marmar, 2007). The military training NG/R personnel receive is also quite different from active duty personnel; whereas active duty personnel are able to build and reinforce their skills on a daily basis, NG/R personnel typically train only one weekend a month and 2 weeks in the summer (Hotopf et al., 2006; La Bash, Vogt, King, & King, 2007). Perhaps because of the difference in their military roles, NG/R personnel typically experience fewer separations from their families because of military commitments, and thus, may be less prepared to deal with military separation compared with active duty personnel. Below, we briefly overview the range of deployment stressors experienced by military personnel and we highlight those stressors that may be differentially salient for active duty and NG/R personnel given these identified differences in background characteristics, military roles, and training for deployment.

Deployed military personnel are exposed to a range of stressors in the war zone, including mission-related stressors associated with circumstances of warfare and interpersonal stressors resulting from the pressures that come from being separated from loved ones and living and working in close proximity with other troops. Prior studies have identified a number of mission-related stressors with implications for postdeployment health; included among them, combat exposure, experience of perceived threat, difficult living and working environment, and lack of preparedness for deployment (e.g., King, King, Foy, Keane, & Fairbank, 1999; Kulka et al., 1990; Litz, King, King, Orsillo, & Friedman, 1997; McCarroll, Ursano, & Fullerton, 1995; Sutker, Uddo, Brailey, Vasterling, & Errera, 1994; Vogt & Tanner, 2007). Several of these stressors may be particularly relevant for NG/R personnel. For example, because NG/R personnel receive less training compared with active duty personnel, they may experience more perceived threat in response to circumstances of combat and may feel less prepared for deployment compared with active duty personnel (Hotopf et al., 2006). In turn, these experiences may have a stronger impact on their postdeployment health and adjustment. Similarly, lower magnitude stressors associated with the difficult living and working war-zone environment, in which long work hours, exposure to extreme temperatures, and other aggravations of daily living are common, may be especially salient for NG/R personnel, who may find adjusting to the war-zone environment more difficult given their older age and more limited military training.

Although interpersonal stressors have received less empirical attention in the deployment health literature, findings indicate that concerns about family disruptions, sexual harassment, and lack of deployment social support have implications for postdeployment adjustment (Fontana & Rosenheck, 1994; King, King, Fairbank, Keane, & Adams, 1998; Malone et al., 1996; Ryan-Wenger, 1992; Solomon & Mikulincer, 1990; Vogt, Pless, King, & King, 2005; Wolfe et al., 1998). Among these stressors, both concerns about family disruptions and lack of social support may be of greater relevance for NG/R personnel. As noted previously, NG/R personnel experience fewer separations from their families compared with active duty personnel, and as such, may experience more concerns related to family disruptions. In addition, N/R personnel may have access to less social support during deployment given that NG/R units are more frequently broken apart, with individuals or small teams used to augment active duty units, whereas their active duty counterparts are more typically deployed as part of cohesive units (Friedman, 2006; Marshall, Davis, & Sherbourne, 2000).

Although few studies have examined differences in exposure to deployment stressors and their health consequences for active duty and NG/R personnel, those studies that are available have primarily focused on identifying differences in their health status following deployment. One population-based study that examined differences between Gulf War I active duty and NG/R personnel revealed that NG/R personnel experienced more symptoms of chronic fatigue and alcohol abuse and decreased mental health status after return from deployment compared with active duty personnel (Iowa Persian Gulf Study Group, 1997). Another study of Gulf War I personnel found similar results, with NG/R personnel more likely to meet criteria for posttraumatic stress disorder than active duty personnel (Stretch, Marlowe, & Wright, 1996). A final study found higher levels of symptoms for members of NG/R units compared with active duty Gulf War I personnel (Wolfe, Erickson, Sharkansky, King, & King, 1999). More recent research based on military personnel deployed to Iraq or Afghanistan has produced mixed results. Although the majority of these studies have revealed few differences in health status following deployment (Hoge, Aucherlonie, & Milliken, 2006; Kang & Hyams, 2005; Seal et al., 2007), studies of U.K. veterans have generally demonstrated poorer health outcomes for reservists relative to "regular" military personnel (Hotopf et al., 2006; McAllister, Blair, & Philpott, 2004; Turner, Kiernan, McKechanie, Finch, McManus, & Neal, 2005). What these studies have in common is that they do not address differences in reports of deployment stressors or differential associations with health outcomes, as was done in the present study.

A secondary question that was of interest in the present study was whether the impact of active duty versus NG/R status as a moderator of associations between deployment stressors and

PTSS would be the same for women and men. Given differences in how women and men experience and respond to traumatic events (Tolin & Foa, 2006), as well as prior findings suggesting that deployment stressors and their impact on the mental health of veterans may differ for men and women (Vogt, Pless, King, & King, 2005), one might question the extent to which men and women have comparable experiences in the same type of units.

The primary overarching hypothesis for this study was that NG/R personnel would report greater exposure to deployment stressors than active duty personnel, and that associations between these deployment stressors and PTSS would be stronger for NG/R personnel compared with active duty personnel. Among mission-related stressors, we predicted that NG/R personnel would report more perceived threat, difficult living and working environment, and lack of preparedness, and that these stressors would demonstrate stronger associations with PTSS for NG/R personnel compared with active duty personnel. Among interpersonal stressors, we predicted that NG/R personnel would report more concerns about family/relationship disruptions and less social support, and that these stressors would demonstrate stronger associations with PTSS for NG/R personnel compared with active duty personnel. Given the lack of relevant literature, we had no specific hypotheses regarding the remaining deployment stressors (i.e., combat experiences and sexual harassment), as well as how relationships would differ for the genders.

METHOD

Survey Procedure and Sample

Our sampling pool consisted of 495 Gulf War I veterans from across the country. These veterans were originally identified through the Defense Manpower Data Center and the VA Gulf War Health Registry and selected such that there was an overrepresentation of women (25%) relative to their representation in Gulf War I. We employed Mangione's (1998) multistep method to optimize our response rate. First, veterans were mailed a letter explaining the purpose of the study, assuring confidentiality, and otherwise conforming to standards for the protection of human subjects. Next, a survey package containing a collection of stressor and health measures was sent to potential participants. Several weeks later, a reminder card was sent, followed by a remailing of the package to nonrespondents, and then a final reminder card. Of those veterans whom we believe received the survey package (i.e., the package was not returned by the postal service), 320 provided completed questionnaires, corresponding to a 67% response rate. Participation rate varied slightly by gender and active duty versus NG/R status. Women were slightly less likely to participate (56%) than men (67%). Participants deployed from active duty were less likely to participate (41%) than NG/R personnel (78%).

The sample for this study consisted of the 311 participants who provided information on military status. Eighty-one participants (26%) reported that they were deployed to Gulf War I from active duty units and 230 (74%) indicated being deployed from NG/R units. Participants represented the Army (78%), Navy (6%), Air Force (10%), Marines (6%), and Coast Guard (<1%) branches of service. The majority of the participants were enlisted personnel ($n = 242$; 78%). Of these participants, 231 (74%) were male. The mean age of the participants was 44 years ($SD = 9$). The majority of participants ($n = 228$; 74%) reported being Caucasian, 48 (16%) reported being African American, and 43 (14%) participants further identified themselves as Hispanic.[1] Active duty and NG/R personnel demonstrated several differences on these background characteristics. Active duty personnel were more likely to report being in Marines; NG/R personnel were more likely to report being in the Army, $\chi^2(4, N = 311) = 20.22$, $p < .05$. NG/R personnel were also older on average, $t(309) = 4.64$, $p < .05$, and they were less likely to report being Hispanic, $\chi^2(4, N = 307) = 4.45$, $p < .05$, than active duty personnel.

Measures

All deployment stressor scales are from the Deployment Risk and Resilience Inventory, (DRRI; King, King, Vogt, Knight, & Samper, 2006), a collection of individual scales that can be used to measure deployment stressors of military personnel and veterans.[2] Estimates of internal consistency reliability were .85 or higher for all DRRI scales. Below we provide brief descriptions of the DRRI scales that were used for this study. Further information regarding these stressor measures, their psychometric properties, and sample items is available in King et al. (2006).

Combat experiences is defined as exposure to events reflecting stereotypical warfare, such as firing a weapon, being fired on, and witnessing injury and death. This scale is comprised of 15 items and uses a dichotomous (yes/no) response format.

Perceived threat is defined as fear for one's safety and well-being in the war zone, especially as a response to exposure to circumstances of combat. This 15-item scale had a 5-point response format with anchors 1 = *strongly disagree* to 5 = *strongly agree*.

Difficult living and working environment is defined as exposure to events or circumstances representing repeated or day-to-day irritations and pressures related to life in the war zone. Participants responded to this 20-item scale using a 5-point response format with anchors 1 = *almost none of the time* to 5 = *almost all of the time*.

Preparedness is defined as the extent to which an individual perceived that she or he was prepared for deployment, including

[1] Percentages for race and ethnicity exceed 100% because some individuals who identified as Hispanic also identified as Caucasian.

[2] We use the term *deployment stressors* as a general category of war-related factors that influence the adjustment and well-being of veterans. We recognize that two of these factors, preparedness and deployment social support, are defined and scored such that their dimensions reflect protective factors, and we logically assume that low scores on these variables represent vulnerability.

having the equipment and supplies she or he needed and feeling prepared for what to expect from the deployment. Participants responded to this 14-item scale using a 5-point Likert response format (1 = *strongly disagree*; 5 = *strongly agree*).

Concerns about family/relationship disruptions is defined as the extent to which participants worried that deployment to the Gulf region might negatively affect family or other relationships. This 8-item scale had a 4-point Likert response format (1 = *not at all*; 4 = a *great deal*) with an additional option of 0 = *not applicable.* In scoring this measure, responses of *not applicable* were recoded to be equivalent to responses of *not at all.*

Sexual harassment is defined as unwanted sexual contact or verbal conduct of a sexual nature from other unit members, commanding officers, or civilians in the war zone. This scale is comprised of seven items, and respondents rated their experiences of sexual harassment using a 4-point Likert response format (1 = *never*; 4 = *many times*).

Deployment social support is defined as perceived assistance and encouragement from the military in general, unit leaders, and other unit members. This 12-item scale had a 5-point response format with anchors ranging from 1 = *strongly disagree* to 5 = *strongly agree*.

In addition to the deployment stressors, we assessed PTSS using the military version of the PTSD Checklist (PCL; Blanchard, Jones-Alexander, Buckley, & Forneris, 1996; Weathers, Litz, Herman, Huska, & Keane, 1993). This measure contains 17 items corresponding to the symptom criteria for PTSD (American Psychiatric Association, 1994). Respondents rated each item on a 5-point response scale with anchors ranging from 1 = *not at all* to 5 = *extremely*. The coefficient alpha was .96, and continuous scores were used in all analyses.

Data Analysis

Descriptive statistics for all deployment stressors and PTSS were calculated separately for active duty and NG/R personnel. Next, *t* tests were computed to compare groups on deployment stressors and PTSS. To evaluate military status-based differences in associations between deployment stressors and PTSS, a series of hierarchical multiple regression analyses were conducted next. Variables representing main effects of deployment stressors were centered prior to the calculation of the interaction product terms, as recommended by Cohen, Cohen, West, and Aiken (2003). At the first step of each regression, gender, active duty versus NG /R status, and the deployment stressor was entered into the analyses. At the second step, the product term of military status with the deployment stressor was entered to evaluate the role of military status as a moderator of the relationship between the deployment stressor and PTSS (two-way interaction). At the third step, all possible product terms involving gender were entered to evaluate the role of gender as a moderator of interactions between military status and stressor in predicting PTSS (three-way interactions). In all analyses, we documented effect sizes, consistent with contemporary emphasis on the practical implications of findings (e.g., Harlow, Mulaik, & Steiger, 1997; Hubbard & Ryan, 2000; Wilkinson & The APA Task Force on Statistical Inference, 1999). Effect sizes representing the unique predictive value of each variable were computed in terms of correlations (Rosenthal, 1984). Guidelines for interpreting effect sizes represented by correlations are provided by Cohen (1988); according to these guidelines, $r = .10$ represents a small effect, $r = .30$ represents a medium effect, and $r = .50$ represents a large effect.

RESULTS

Table 1 contains means and standard deviations for all study variables for active duty and N/G personnel. The table also presents *t* statistics and effect sizes reflecting the results of comparisons between active duty and NG/R personnel. Following on the work of Vogt et al. (2005), stressors were categorized as mission-related or interpersonal in nature. As indicated in this table, active duty personnel reported significantly more combat experiences than NG/R personnel. On the other hand, NG/R personnel expressed significantly more concerns about family/relationship disruptions than active duty personnel. Both effects were fairly modest, and no other differences emerged in these analyses.

Results of the hierarchical multiple regression analyses are presented in Tables 2 and 3. As indicated in these tables, main effects for all seven deployment stressors were found, even after controlling for gender and military status (Step 1 of each analysis). As expected, in all cases, risk factors were positively associated with PTSS, and resilience factors were negatively associated with PTSS. Effect sizes (*r*s) corresponding to these main effects were in the moderate to moderately strong range.

Of more importance to the purpose of this study, however, are the results for the hierarchical multiple regression analyses that generated significant effects for two-way interaction terms involving stressors and military status and three-way interaction terms involving stressors, military status, and gender.[3] A graphical representation of these results are presented in Figure 1–3. As indicated in Table 2 and depicted in Figure 1, the three-way interaction involving perceived threat was significant. Additional inspection of this result revealed that the association between this stressor and PTSS was stronger for men from NG/R units compared to active duty units. The exact opposite was true for women; the strongest association was for women from active duty units in comparison to women from NG/R units. As depicted in Figure 2, a significant three-way interaction involving difficult living and working environment was also found. The pattern of findings for this in-

[3] Significant two-way interactions between stressors and gender were found for several of the variables but are not discussed because they were not the focus of the present study and these results are presented elsewhere (i.e., Vogt, Pless, King, & King, 2005).

Table 1. Descriptive Statistics and Group Contrasts for All Stressors and Posttraumatic Stress Symptomatology (PTSS)

	Active duty		NG/R Personnel			
Variable	*M*	*SD*	*M*	*SD*	*t*	ES
Mission-related stressors						
Combat experiences	4.02	3.85	2.77	3.02	−2.98*	.17
Difficult living and working environment	57.84	13.51	58.60	13.80	0.43	.02
Preparedness	48.19	11.59	47.02	10.46	−0.85	.05
Perceived threat	46.34	11.87	47.97	12.41	1.03	.06
Interpersonal stressors						
Concerns about family/relationship disruptions	16.21	6.00	18.56	6.32	2.92*	.16
Deployment social support	42.23	11.90	41.55	11.19	−0.47	.03
Sexual harassment	7.84	2.09	7.90	2.83	0.18	.01
PTSS	35.25	16.21	35.86	17.89	0.27	.02

Note. NG/R = National Guard/Reserve; ES = effect sizes.
* $p < .05$.

teraction was exactly the same as that for the preceding three-way interaction. Again, for men the association between this stressor and PTSS was stronger for NG/R personnel, whereas for women the association was stronger for active duty personnel.

Turning to the stressors that were of a more interpersonal nature (Table 3), we found one two-way interaction between military status and concerns about family/relationship disruptions. As indicated in Figure 3, this association was weaker for active duty personnel than for NG/R personnel.

DISCUSSION

In the current study, we examined differences in exposure to deployment stressors and differential associations between deployment stressors and PTSS for military personnel deploying to Gulf War I from active duty and NG/R units. With two exceptions, results pertaining to mean differences in exposure did not support our hypothesis that NG/R members would report more deployment stressors than active duty personnel. Instead, findings generally appeared to suggest that active duty and NG/R personnel experience similar stressors during deployment. Exceptions were for concerns about family/relationship disruptions and combat exposure. The former difference may be interpreted in terms of the roles and responsibilities of active duty and NG/R personnel. Even during times of peace, active duty personnel are often deployed overseas for training missions or special humanitarian duties. In contrast, NG/R members typically train one weekend a month and 2 weeks in the summer; the rest of the time they lead normal civilian lives and, thus, they may be less well prepared to deal with the stress of separation from their families compared with active duty personnel. The latter difference in combat exposure was not hypothesized, but appears to suggest that the roles for which active duty personnel are deployed may engender more combat exposure compared with NG/R personnel. It will be interesting to examine whether this finding holds in the most recent cohort of veterans deployed to the Iraq War, in which the lines of combat and combat-support may be more blurred (La Bash et al., 2007).

The hypothesis that deployment stressors would demonstrate stronger associations with PTSS for NG/R personnel compared with active duty personnel was supported for concerns about family/relationship disruptions. This stressor demonstrated stronger relationships with PTSS for NG/R personnel than for active duty personnel. This finding builds on our mean difference results to suggest that NG/R personnel both experience more concerns about family/relationship disruptions and these disruptions may be more detrimental to their mental health than active duty personnel. Again, this finding is consistent with the idea that NG/R personnel (and their families and loved ones) may be less well prepared to cope with the separation of deployment.

Interesting results emerged from three-way interactions involving gender, suggesting that several mission-related stressors may demonstrate stronger negative effects on PTSS for active duty women and NG/R men. It is unclear why active duty military status would be more protective for men than NG/R status, whereas NG/R status would be more protective for women than active duty status. One explanation is that active duty units provide some benefits to men, perhaps in terms of cohesion, that are less available to women. This finding would be consistent with anecdotal evidence indicating that women have more negative experiences in active duty units than in NG/R units, in which the sex ratios tend to be more equal (Corbett, 2007). It may also be that women in active duty units have more extensive trauma histories compared with NG/R women, and this makes

Table 2. Summary of Multiple Regression Analyses for Mission-Related Stressors Predicting Posttraumatic Stress Symptomatology (PTSS)

	Combat experiences			Perceived threat			Difficult living & working environment			Preparedness		
	B	*SE B*	ES	*B*	*SE B*	ES	*B*	*SE B*	ES	*B*	*SE B*	ES
Step 1		($R^2 = .84$)			($R^2 = .86$)			($R^2 = .86$)			($R^2 = .82$)	
Gender	−5.32	2.12	.14*	−1.35	1.93	.04	−1.22	1.94	.04	−1.07	2.23	.03
Military status	3.60	2.10	.10	−0.56	1.93	.02	0.14	1.93	.01	0.27	2.22	.01
Stressor	2.29	0.29	.41*	.75	0.07	.53*	0.67	0.06	.53*	−0.34	0.09	.21*
Step 2		($R^2 = .84$)			($R^2 = .86$)			($R^2 = .86$)			($R^2 = .82$)	
Gender	−5.09	2.12	.14*	−1.07	1.95	.03	−1.08	1.94	.03	−1.00	2.25	.03
Military status	3.15	2.11	.08	−0.41	1.93	.01	0.28	1.92	.01	0.32	2.23	.01
Stressor	0.64	0.99	.04	.45	0.29	.09	0.23	0.26	.05	−0.23	0.35	.04
Military status x stressor	1.00	0.58	.10	.17	0.16	.06	0.26	0.14	.10	−0.07	0.20	.02
Step 3		($R^2 = .84$)			($R^2 = .87$)			($R^2 = .87$)			($R^2 = .82$)	
Gender	−13.52	9.19	.08	−17.86	8.24	.12	−7.76	7.78	.06	−6.14	9.04	.04
Military status	−0.65	4.44	.00	−7.66	3.99	.11	−2.47	3.74	.04	−1.19	4.37	.02
Stressor	3.07	2.97	.06	1.64	0.58	.16	1.06	0.49	.12	−0.95	0.64	.08
Military status x stressor	−0.15	1.67	.00	−0.52	0.32	.09	−0.24	0.28	.05	0.49	0.37	.08
Military status x gender	4.59	5.13	.05	9.11	4.57	.11*	3.69	4.36	.05	2.49	5.07	.02
Gender x stressor	−2.49	3.17	.04	−1.51	0.67	.13*	−1.12	0.58	.11	0.99	0.77	.07
Military status x gender x stressor	1.16	1.80	.04	0.88	0.37	.13*	0.67	0.32	.12*	−0.77	0.44	.10

Note. Military status = active duty vs. National Guard/Reserve; ES = effect sizes.
* $p < .05$.

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Table 3. Summary of Multiple Regression Analyses for Interpersonal Stressors Predicting Posttraumatic Stress Symptomatology (PTSS)

	Concerns about family/ relationship disruptions			Sexual harassment			Deployment social support		
	B	*SE B*	ES	*B*	*SE B*	ES	*B*	*SE B*	ES
Step 1		($R^2 = .84$)			($R^2 = .82$)			($R^2 = .83$)	
Gender	−2.80	2.07	.08	3.12	2.37	.07	0.16	2.17	.00
Military status	−2.17	2.08	.06	0.42	2.17	.01	0.26	2.14	.01
Stressor	1.20	0.15	.42*	2.07	0.39	.29*	−0.51	0.08	.32*
Step 2		($R^2 = .85$)			($R^2 = .82$)			($R^2 = .83$)	
Gender	−2.68	2.06	.07	3.08	2.39	.07	0.18	2.18	.00
Military status	−1.31	2.10	.04	0.43	2.17	.01	0.25	2.15	.01
Stressor	−0.11	0.61	.01	1.81	1.88	.06	−0.54	0.33	.09
Military status x stressor	0.74	0.34	.12*	0.14	0.99	.01	0.02	0.18	.01
Step 3		($R^2 = .85$)			($R^2 = .83$)			($R^2 = .83$)	
Gender	−8.33	8.87	.05	1.39	10.18	.01	2.51	9.02	.02
Military status	−3.76	4.26	.05	−1.42	4.61	.02	1.80	4.33	.02
Stressor	1.53	1.25	.07	0.48	2.29	.01	−1.08	0.57	.11
Military status x stressor	−0.33	0.69	.03	0.54	1.21	.03	0.36	0.33	.06
Military status x gender	2.91	4.90	.03	1.63	5.61	.02	−1.39	5.03	.02
Gender x stressor	−2.15	1.43	.08	5.51	5.75	.05	0.81	0.71	.06
Military status x gender x stressor	1.40	0.79	.10	−0.81	3.05	.02	−0.50	0.40	.07

Note. Military status = active duty vs. National Guard/Reserve; ES = effect sizes.
* $p < .05$.

them more susceptible to the stressors of deployment. In contrast, men deployed from NG/R units may be at greater risk than NG/R women due to differences in their relative status within the military hierarchy. Specifically, the transition from a predeployment work environment in which NG/R men are at the top of the military hierarchy to the war zone, in which they may be perceived as second-class soldiers compared with their active duty peers, may be disconcerting for some NG/R men. This transition may be less difficult for NG/R women, whose position in the military hierarchy is unlikely to change from predeployment to deployment. Again, these are only possible explanations for these findings and additional research is needed to explore their merit.

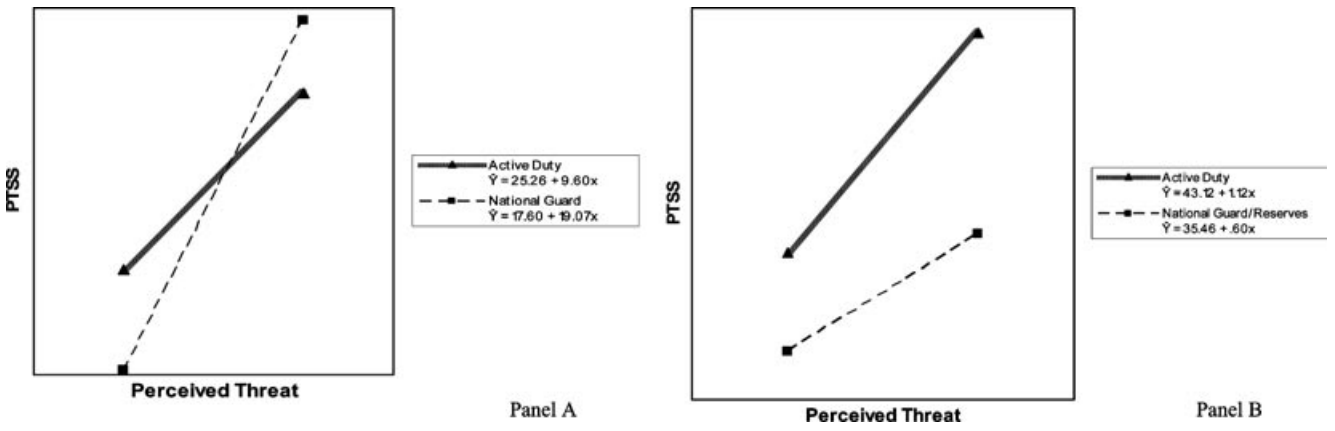

Figure 1 (Panels A and B). Three-way interaction between perceived threat, military status, and gender; Panel A = men, Panel B = women.

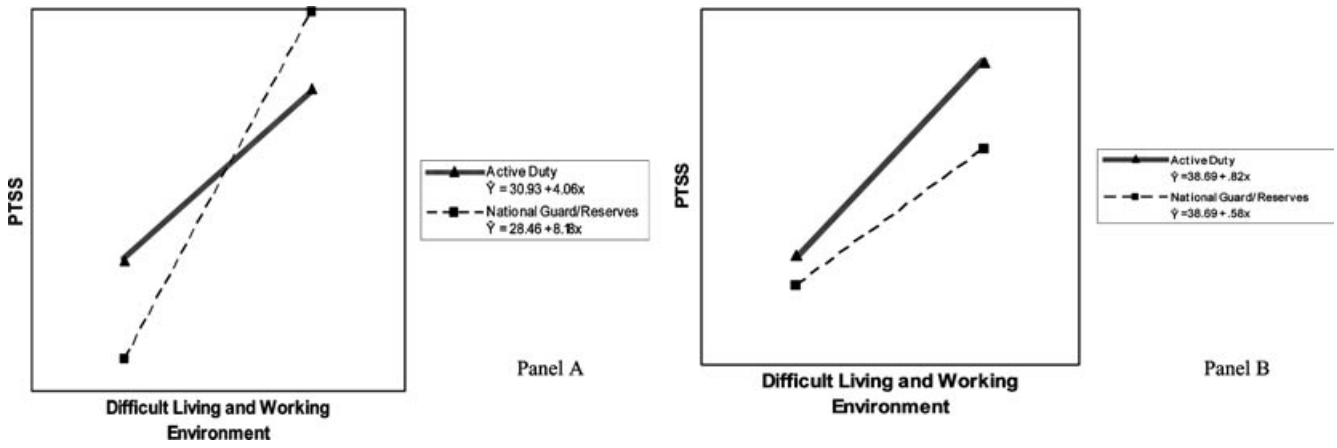

Figure 2 (Panels A and B). Three-way interaction between difficult living and working environment, military status, and gender; Panel A = men, Panel B = women.

Moreover, there were several limitations of the current study that should be addressed in future research, including the self-report nature of our measure of PTSS and the differential response rates for active duty versus NG/R personnel. With respect to the former, it is possible that this measure may be confounded, at least to some extent, with general psychological distress. With respect to the latter finding, many veterans deployed from active duty units may still be in the military, and therefore, simply more difficult to reach for study participation. Yet, this finding may still suggest some degree of response bias that should be addressed in future research.

Finally, although the findings reported here indicate a need to better understand differences in deployment stressors and their effects for military personnel deploying from active duty and NG/R units, it is important to note that these groups did not differ with regard to a number of deployment stressors. Specifically, active duty and NG/R personnel reported similar levels of perceived threat, difficult living and working environment, preparedness, sexual harassment, and deployment social support. Similarly, combat experiences, preparedness, sexual harassment, and deployment social support demonstrated comparable associations with PTSS for active duty and NG/R personnel. Although these results suggest many similarities between these groups, this study is based on a sample of Gulf War I veterans. Future research is needed to determine whether findings are similar for veterans of the more recent wars in Iraq and Afghanistan. Another direction for further investigation would be to examine the role of potential differences in access to post-deployment care in associations between deployment stressors and health outcomes for active duty and NG/R personnel. Given the military's increasing reliance on NG/R and female personnel, and their expanding roles during deployment, studies that can address these questions for this more contemporary cohort of veterans are of critical importance.

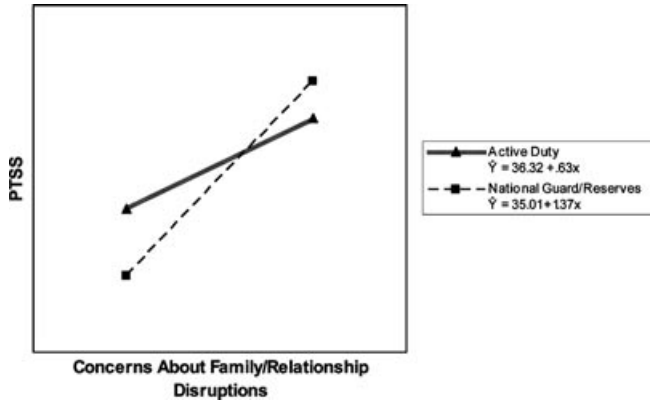

Figure 3. Two-way interaction between concerns about family/relationship disruptions and military status.

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